

## SERIES THREE

M7 B1 150mm Howitzer Motor Carriage (US)

M 18 76mm Gun Motor Carriage  
"HELLCAT" (US)

Tankette Type 97 "TE - KE" (JA)

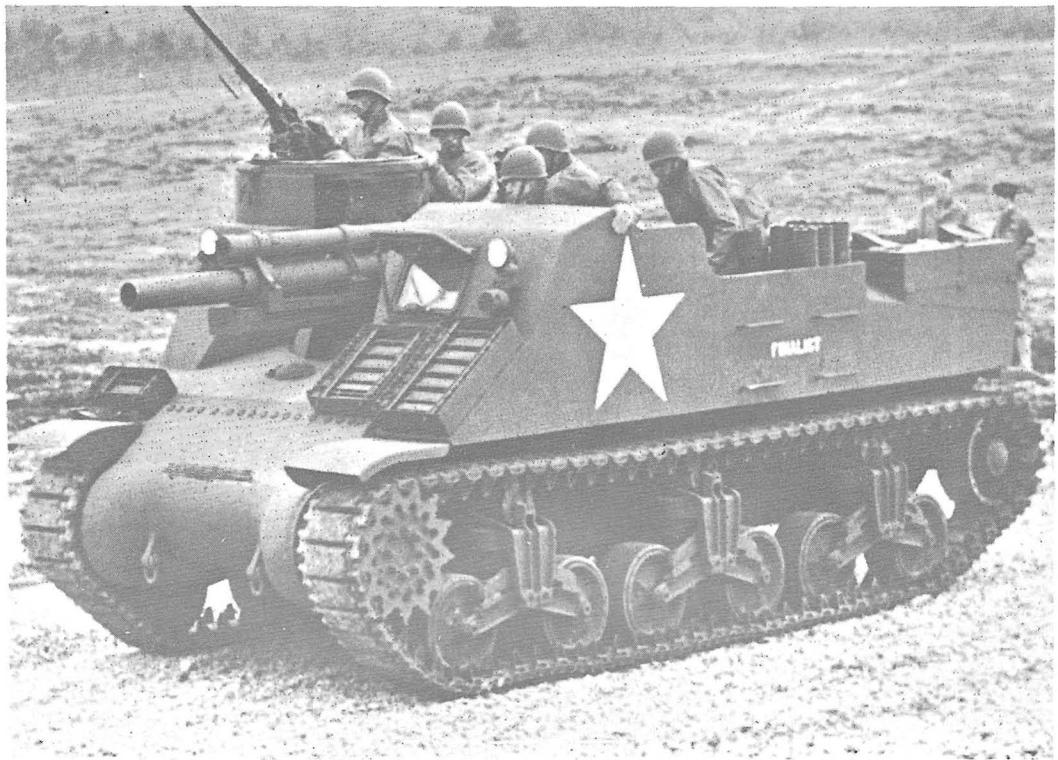
Infantry Tank Mk II "MATILDA" Mk IV (UK)



MILITARY VEHICLE PRINTS

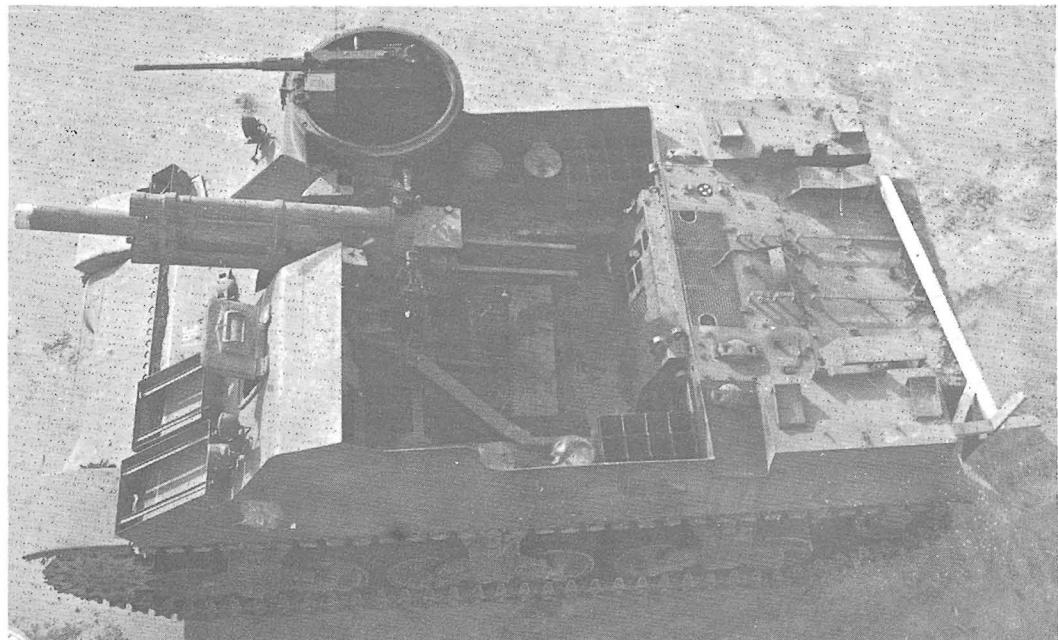
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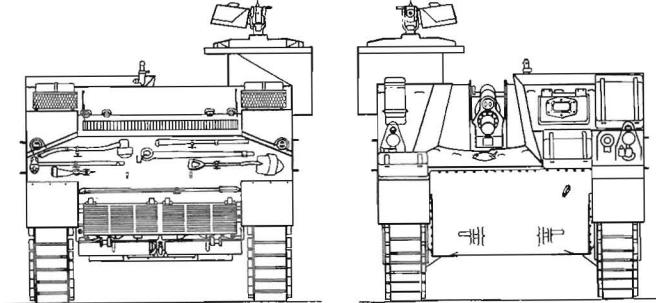
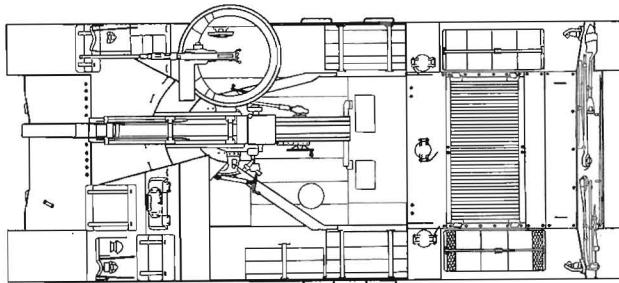
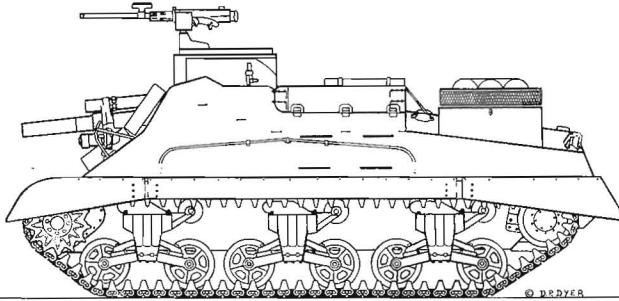
BELLONA  
30p



ABOVE: A fairly early model of the M7 - This version is based upon the chassis of the M3  
( Bellona Prints Series 15 No 60 US ) ( Imperial War Museum Photo)

BELLOW: Excellent birds-eye view of an M7 . This photograph should be of great assistance in interpreting the drawing. This is an earlier model of the 'Priest' but the basic layout was similar for all models ( Official US Photo)





1 0 5 10 15 FEET

M7B1, 105 mm. Howitzer Motor Carriage - 1942  
Scale 1:76 (4mm. to 1 foot)

Drawn by D. P. Dyer

M7B1, 105 mm. Howitzer Motor Carriage (1944)

Although basically similar to the 105mm HMC M7 which had been in quantity production by the American Locomotive Company since April 1942, the M7B1 did not appear until March 1944. It must be stressed however that the M7B1 did not supersede the M7 both models being produced simultaneously.

Being rather late in the field and utilising as it did various components as used on the M4A3 Medium Tank which by then had a one piece cast sharp nosed differential housing and return rollers mounted to the rear of the bogie brackets, the appearance was more modern than very early M7 HMCs. These early M7 were based on the Medium M3 Tank chassis with the three piece differential housing and return rollers mounted centrally over the road wheel suspension brackets.

A total of 826 105mm HMC M7B1 were produced by the Pressed Steel Corporation of America by February 1945 after which production of the M7 series of 105mm HMCs was transferred to the Federal Machine and Welder Company who produced a further 127 which could have been either M7 or M7B1.

In view of being powered by a V8 water cooled engine instead of an air cooled radial engine as fitted to the M7 the layout of the rear decking is somewhat different.

The M7 series of 105mm Self propelled howitzers were known as 'Priests' by the British due to the pulpit-like A/A gun position, but it is doubtful if any M7B1 were supplied to British Artillery regiments as by mid 1944 they were being supplied with 'Sextons' mounting the 25pdr on Canadian 'Ram' chassis.

All three chassis mentioned above were heavier than necessary for the guns fitted but were a quick and easy solution of providing mobile fire for Armoured Divisions. The availability of these chassis and their reliability fully justified the extravagance however, and maintenance was simplified because of the interchangeability of parts with Tanks already in wide use by the Allies. This extravagance is highlighted by the fact that even 155mm Howitzers were afterwards mounted on only light tank chassis. (Bellona prints series seven).

Technical Details

Combat weight 50,000 lbs.; Crew 7; Road speed 26 m.p.h.; Road range 150 miles; Fording depth 36 ins.; Ground clearance 17 ins; Armour  $\frac{1}{2}$ in. armour plate on front; Armament (1) 1 x 105 mm. howitzer M1A2, M2, or M2A1; elevation - 5 degrees to plus 35 degrees, traverse 30 degrees right to 15 degrees left; Weight of shell 33 lbs; Muzzle velocity 1,550 ft/sec. (2) 1 x .50 cal.m/g M2 on ring mount. Ammunition; howitzer 69 rounds, m/g 300 rounds.

Engine Ford V-8 liquid cooled petrol type GAA of 500 h.p.

Fuel 168 gals. Syncromesh transmission - 5 forward gears and 1 reverse.

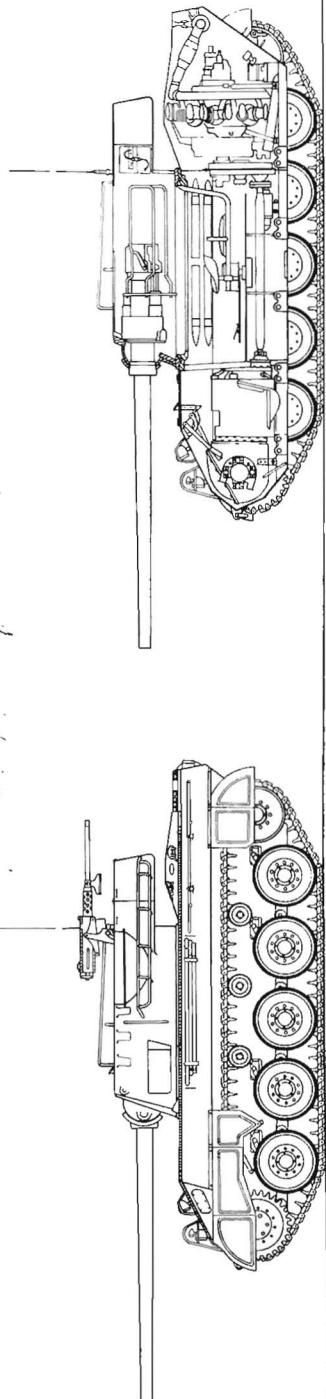
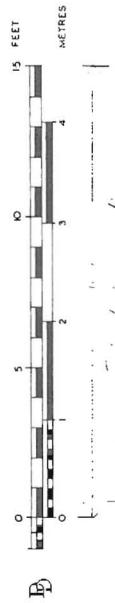
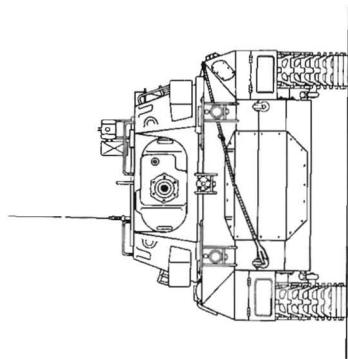
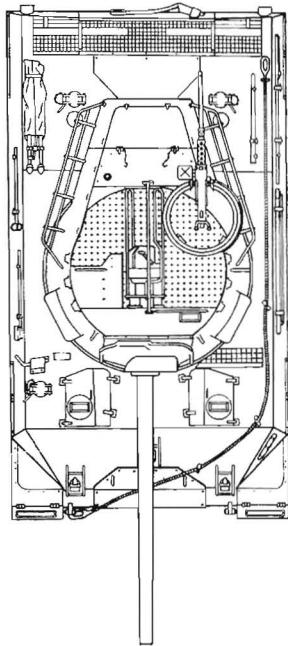
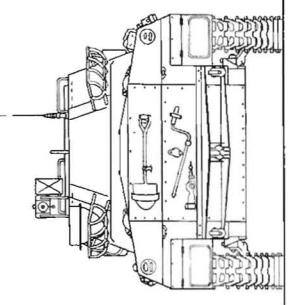
Controlled differential steering.

Modelling

Use Airfix Sherman kit chassis and build-up superstructure etc.

# 76mm GUN MOTOR CARRIAGE M18 HELLCAT

SCALE 1:76 (4 mm to 1 foot) Drawn by D.P.DYER



M.18, 76mm Gun Motor Carriage, 'Hellcat' (1943)

Designed from the outset as a Tank Destroyer in World War II the M.18 was a highly successful concept. Although only weighing about half as much as the 3" GMC M.10 which had been in production for about six months before the M.18 started coming off the assembly lines it carried a gun of equal performance. This gun was the same as was eventually fitted to 76mm Medium M4 series tanks from early in 1944.

Whilst the weight was reduced, the same aircraft engine was fitted as powered certain of the Medium M4 series tanks giving a very good power to weight ratio, resulting in a very high top speed of 45 mph. This vehicle was in fact the fastest tracked vehicle of World War two.

The Torsion bar suspension fitted was the forerunner of this type of suspension being fitted without exception to all weight classes of American Tanks and Self Propelled guns either by the War's end or early post War period.

The basic design was good and very few modifications took place between the prototypes designated T.70 and production models. The T.70 had both a rear compensating idler and front compensating drive sprocket (to allow for varying track tension as the vehicle moved over rough ground) which may have been included on early production models. Later production models only had a front compensating drive sprocket as shown in the drawing. The T.70 also had a 'blister' instead of a stowage box on the left hand side of the turret (stated to have been a revolver port) and the pioneer equipment was stowed differently.

The drawing shows the M1A1 gun fitted which did not have a muzzle brake.

Production of the M.18 was by the Buick Motor Division of General Motors who produced a total of 2,507 between July 1943 and October 1944.

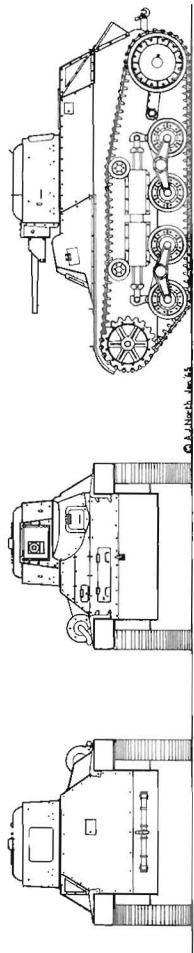
A limited number of turretlss M.18 with a built up superstructure were built as Armoured Utility tractors M.39 for use as troop or cargo carriers in a similar manner to other 'Kangaroo' type vehicles. Various experimental models utilised the M.18 chassis, one being the T.88 which had a 105mm Howitzer in place of the 76mm gun and there were two experimental amphibious self propelled guns designated the T.86 and T.87.

It is interesting to compare the outcome of design thinking around the same tactical problem of mobile anti tank guns by comparing the M.18 with the Jagdpanzer 38(t) Hetzer (Bellona Prints series 4) which although appearing about a year later had a somewhat similar performance gun.

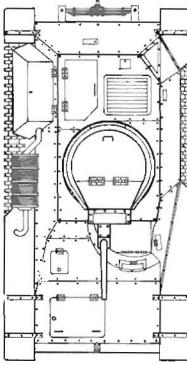
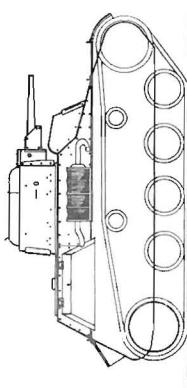
Technical Details

Combat weight 37,557 lbs.; Engine, Continental Radial model R975C1 or 4 9 cylinder air cooled petrol type, of 400 h.p.; Range 150 miles; Fuel 165 gals.; Armament (1) 1 x 76 mm. gun M1A1, M1 A1C, or M1A2 of 55 cals. length; (2) 1 x .50 cals. m/g heavy barrel A.A.M2; Ammunition - 45 rounds x 76 mm. A.P., 800 rounds x .50 cal.; Muzzle velocity (A.P.) 2,600 ft/sec.; Traverse, 360 degrees; Elevation - 10 degrees to plus 20 degrees.

Transmission, Torquematic, 3 gears forward and reverse gear; Suspension, Torsion bar; Fording depth 48 ins.; Ground clearance 14½ ins.



Scale 1:76 (4mm. to 1 foot)



Tankette Type 97, TE-KE - 1937  
Drawn by A. J. D. North

Tankette, Type 97, TE - KE (1937)

Representing the last of the Tankette series in the Japanese Army, the Type 97 was a direct development of the earlier Types 92 and 94. Although it was similar in outline, the Type 97 differed substantially from its predecessors in having its engine mounted at the rear of an enlarged and improved hull instead of on the left of the hull alongside the driver as in the earlier models. These improvements increased the weight by more than a ton over the Type 92.

This was the only tankette to mount a cannon, the weapon in question being the standard 37 mm. gun also fitted to other Japanese tanks. Some Type 97s, however, had a machine-gun fitted instead, this being a 7.7 mm. calibre similar to the Japanese infantry machine-gun. Maximum armour thickness was 16 mm. - slightly more than on previous types - and the minimum thickness was 4 mm.

Suspension was similar to that of the medium tanks (see Bellona Print No. 5j) with the two bogies on each side sprung horizontally and the springs covered to prevent damage.

As might be expected in a vehicles of this tiny size, the crew comprised two men only - driver and commander/gunner. It is interesting to note that the hull is non-symmetrical, giving more room for the driver and the engine on the left-hand side.

Like most Japanese tanks, the Type 97 left much to be desired in the way of armament and protection by Western standards.

Date of introduction was 1937-38.

Technical Details

Weight 4.8 tons; Armour up to 16 mm.; Engine 4-cylinder, air-cooled diesel giving 65 h.p. at 2,300 r.p.m.; Speed 25 m.p.h.; Range 150 miles; Fuel 20 gals.;

Armament - 1 x 37 mm. gun with 102 rounds of ammunition

OR 1 x 7.7 mm. m/g with 2,800 rounds of ammunition

Trench crossing ability, 5ft. 3ins.; maximum vertical obstacle 2ft. 8 ins.

Modelling

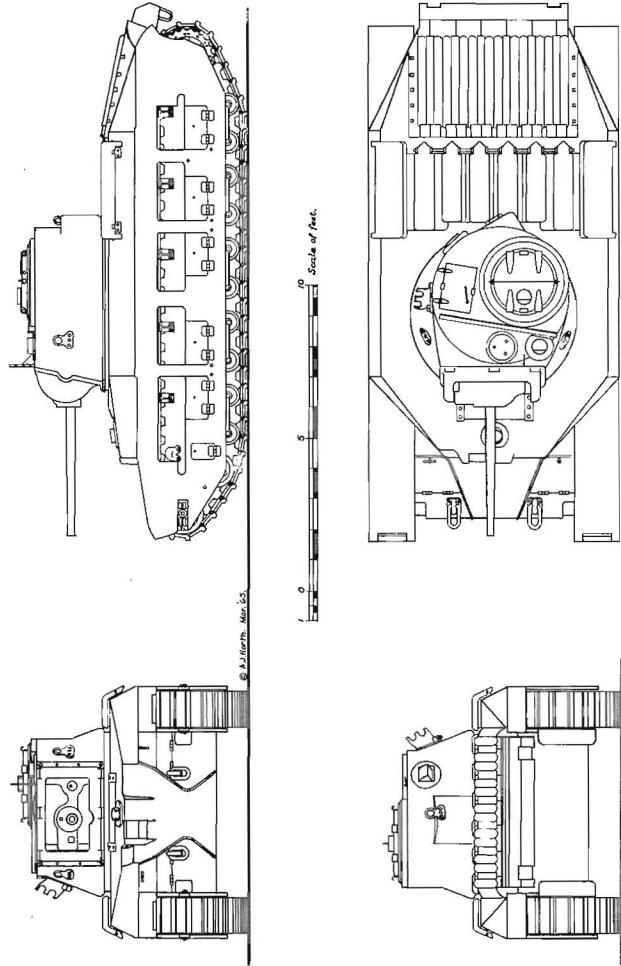
Use Airfix Carrier wheels cut individually from suspension arms. File down slightly in diameter. Cut sides, top faces, bottom, etc., from card or styrene sheet, tracing outline from drawings or pricking the outline through the paper. Use a suitable piece of dowel for turret, and a pin or nail for the pivot.

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Infantry Tank Mk. II, Matilda Mk. IV - 1940  
Scale 1:76 (4mm. to 1 foot)  
Drawn by A. J. D. North



Infantry Tank Mk. II, Matilda Mk. IV

To overcome the limitations of the slow and diminutive Infantry Tank Mk. I, which was armed only with machine guns, it became necessary to initiate a completely new design, based on an earlier experimental tank, the A7, which had never, itself, gone into production. The new tank was to have higher speed, better armour, and a more powerful gun than its predecessor.

Vickers, Britain's leading tank producers, preferred to devote their energies to a design of their own (this was the Valentine), so the basic design of the Infantry Tank Mk. II (as it was known) was handed over to Vulcan Foundry in the autumn of 1936, and slow but detailed development work began. A prototype was ready by the spring of 1938, and the new vehicle was put into production and appeared in time to provide a few weeks of useful service with the B. E. F. in France just before the Dunkirk evacuation. The Arras counter attack of 21st May 1940 was one of the actions in which the Matilda played an important part. Matildas were completely immune to the normal 37 mm. anti-tank shell then used by the Germans as well as to field guns, a state of affairs which remained until the 88 mm. flak gun was first used as an anti-tank weapon in mid 1941. It was in the North African desert that the Matilda was most widely used, taking part in most of the major actions. Just before Alamein the Matilda was withdrawn altogether, save for about 30 which were converted to 'Baron' flail minesweepers. Further Matildas were converted to Canal Defence Lights, carrying armoured searchlights intended to illuminate night actions, or blind enemy positions.

Among the best known tanks of the war, Matildas were easily recognised by their heavy appearance and the plated sides with the rows of mud chutes. The superstructure was almost entirely cast, which made production slow and complicated, and the speed was not fast enough for the requirements of mobile warfare. However, the Matilda design was about the best to come from the period of uncertainty in British tank design before World War II.

All marks of the Matilda were almost identical in appearance. The drawing represents the Mk. IV version which could mount an external fuel tank to increase its range.

Technical Details

Weight 26.5 tons; Armour up to 78 mm.; Engine Leyland E 170/171, (two), 190 h.p.; Fuel 56 gals.; Range about 70 miles with auxiliary tank; Max. road speed 15 m.p.h.; Armament - 1 x 2pdr. OR 1 x 3 ins. Howitzer in close support version; 1 x 7.92 mm. Besa m/g, co-axial.

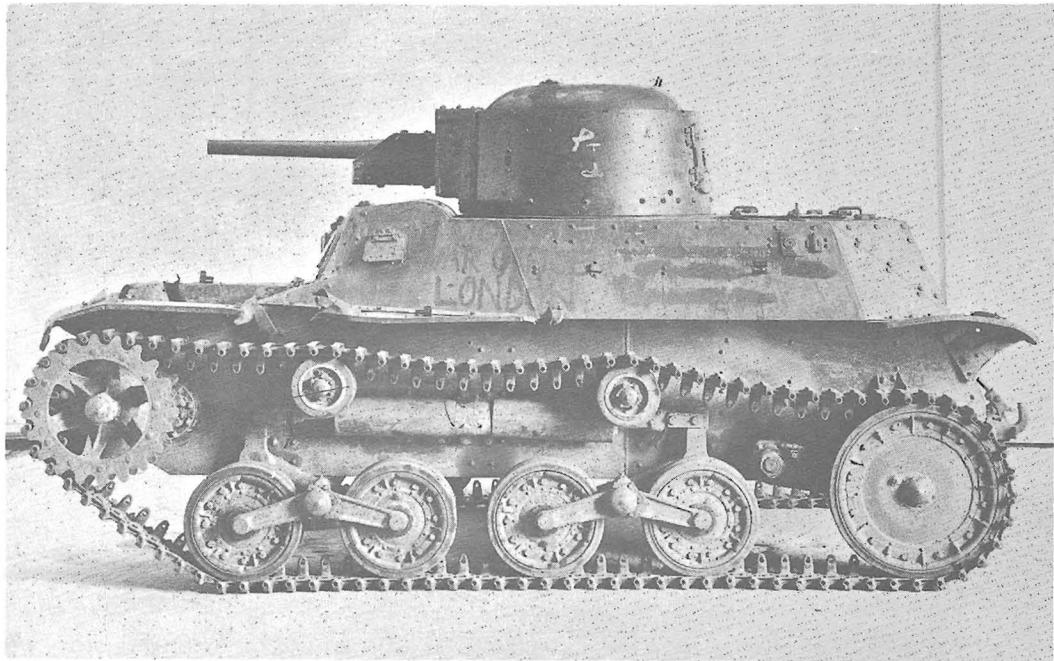
Also used for training by Red Army (lease-lend) and employed in East by Australian Army.

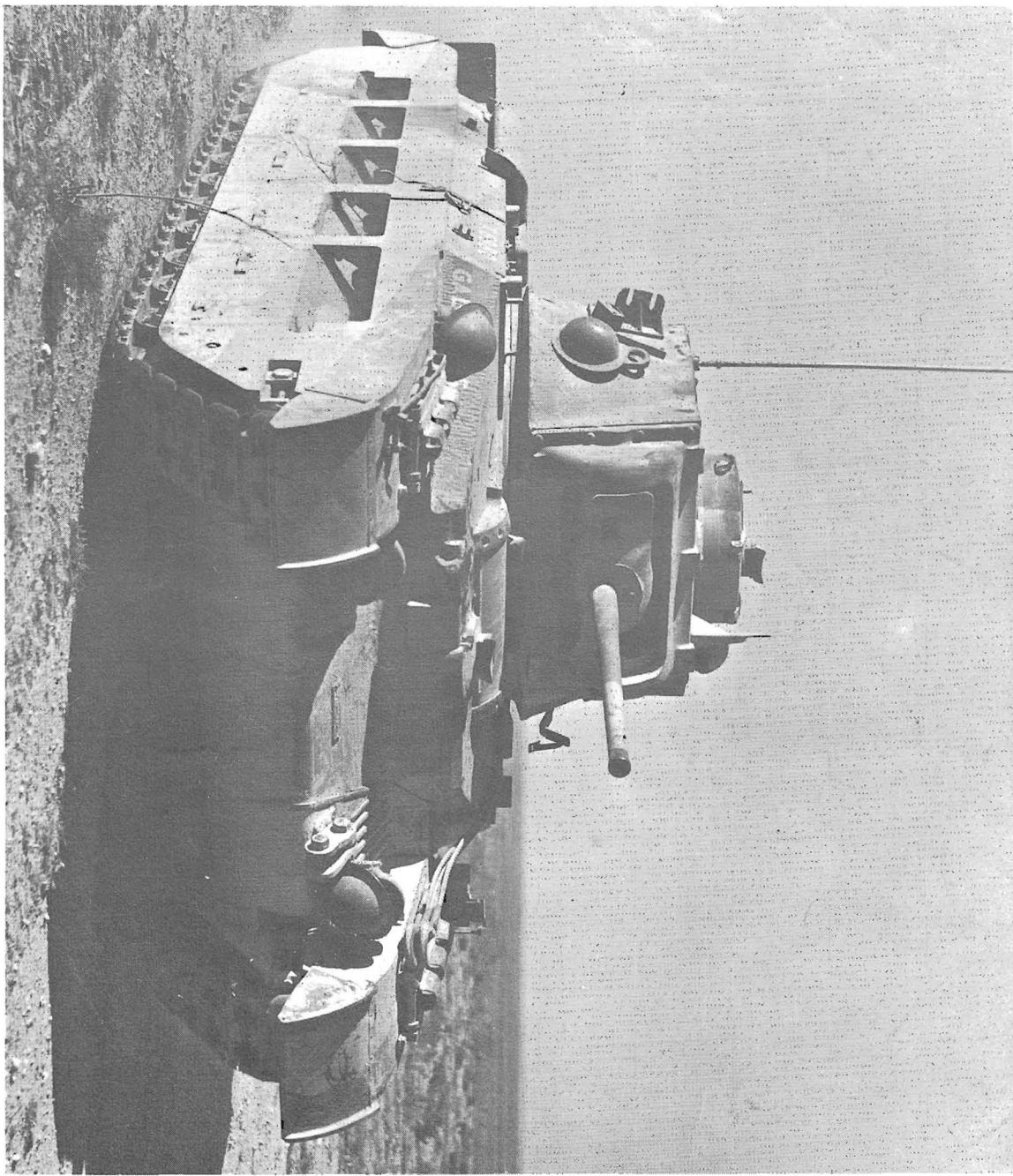
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ABOVE: A heavily laden M 18 'Hellcat' on picket duty in a French town during the drive through France in 1944. ( Official US Photo )

BELLOW: The simplified lines of the hull of the 2597 Tankette, Te-Ke, can be seen in this photograph. Note also the Japanese style of horizontal sprung suspension.  
( Imperial War Museum Photo )





At the time this photograph was taken (December 1940) the 'Matilda' was the strongest tank in service; its armour being proof against most types of enemy anti-tank weapons. Slow speed and mechanical shortcomings, however, hampered its use.  
(Imperial War Museum Photo).